

## **PROBLEM SOLVING!**

### **The 4-STEP method:**

- 1) Understand the problem**
- 2) Plan your strategy**
- 3) Work!**
- 4) Check your answer (is it reasonable?)**

**Examples:**

1) A small office building is being remodeled. It takes 3 plumbers 7 days to install pipes. Each plumber works 8 hrs per day at \$35 per hour. How much will it cost for the plumbers to do the job?

$$8 \times 35 = \$280 \times 7 = 1960 \times 3 = \$5880$$
$$3 \times 7 = 21 \times 8 = \quad \times 35 = (5880)$$

2) It takes 2 carpenters 8 days to do the work at a house. Each carpenter earns \$37.50 per hour and works 7 hours per day. How much will it cost to hire the carpenters to do the house?

$$7 \times 37.50 \times 8 \times 2 = \$4200$$

Complete the following: p.61 #2 --- 8

② \$12,870

③ \$139.88

④ \$158.70

⑤ \$11,984

⑥ \$2421.90

⑦ \$868.50

⑧ 52 wks.

### PATTERNS:

Examples:

1) 2, 4, 6, 8, 10, 12, 14 ...  $+2$

2) 1, 3, 6, 10, 15, 21, 28, 36 ...  
 $+2$   $+3$   $+4$   $+5$   $+6$   $+7$   $+8$

3) 1, 3, 9, 27, 81, 243, 729, ...  
 ~~$\times 2$   $\times 2$   $\times 2$~~   
 $\times 3$   $\times 3$   $\times 3$

Complete the following: p.70, #3 -- 6, 8 ~~11, 12~~

③ 2, 3, 5, 9, 17, 33, 65, 129, 257  
       $\checkmark$   $\checkmark$   $\checkmark$   $\checkmark$   $\checkmark$   $\checkmark$   $\checkmark$   $\checkmark$   
      +1 +2 +4 +8 +16 +32 +64 +128

⑩ 1, 1, 2, 3, 5, 8, 13, —, —, —

### GUESS and CHECK

Example:

It costs \$0.50 to mail a postcard to Canada and \$0.60 to mail a letter to Canada. Andrew wrote 21 friends and spent \$12.00 for postage. How many letters and how many postcards did he write?

$$0.5(P) + 0.6(L) = \$12$$

15	6	\$11.10
10	11	\$11.60
5	16	\$12.10
6	15	\$12.00

**Example:**

The product of 3 consecutive whole numbers is 504. What are the 3 numbers?

$$\underline{7} \times \underline{8} \times \underline{9} = 504$$

**Example:**

Batteries come in packs of 3 or 4. If your class needs 30 batteries, how many different ways are there of buying exactly 30 batteries? What combination has the least number of packs bought?

10 x 3 pack

6 x 3 pack

2 x 3 pack

3 x 4 pack

6 x 4 pack

Complete the following: p.73 #4, 10

AND p. 69 #2

$$\textcircled{4} \quad 12(\text{reg}) + 18(\text{wknd}) = \$654$$

49 hrs. total

$$\textcircled{10} \quad \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} = 120$$

$$\textcircled{2} \quad 5(\quad) + 11(\quad) = 100$$

14 total



## WRITING AN EQUATION

Addition: sum, increase

Subtraction: difference, decrease

Multiplication: product, by

Division: quotient, divide, fraction ( $\frac{1}{2}$ )

Equal: is, the result

Example:

4 times a number plus 20 is 10 less than 57. What is the number?

$$4x + 20 = 57 - 10$$

$$4x + 20 = 47$$

Example:

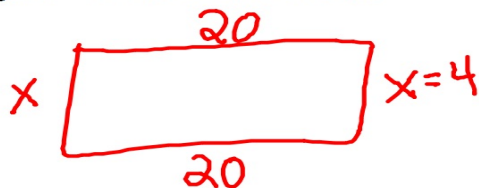
In 40 hours at your regular rate of pay plus 5 hours of double time (twice your regular rate of pay) you earn \$425. What is your regular rate of pay?

$$\begin{aligned}40x + 5 \cdot 2x &= 425 \\40x + 10x &= 425 \\50x &= 425\end{aligned}$$

$$x = 8.50$$

Example:

A rectangle with a perimeter of 48m is 20m long. What is the width of the rectangle? What is the area?



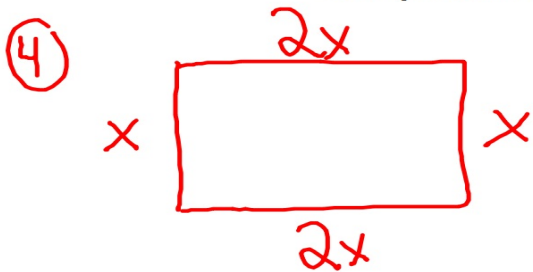
$$48 = 20 + x + 20 + x$$

$$48 = 40 + 2x$$

$$8 = 2x$$

$$4 = x$$

Complete the following: p. 79 #4, 8, 11



$$54 = 2x + x + 2x + x$$

⑧  $7.60(\text{ }^{\text{reg}}) + 15.20(\text{ }^{\text{or}}) =$

⑪  $\underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}} = 27$

### MULTIPLE STEPS

Example:

The band booster club sells cider and donuts at home football games. Last week they sold 318 cups of cider at \$0.50 per cup, and 12 dozen donuts at \$0.60 per donut. What were the total sales?

$$\begin{aligned} 318 \times 0.50 &= \$159 \\ 12 \times 12 &= 144 \times 0.60 = \$86.40 \end{aligned} \quad \rightarrow \quad \boxed{\$245.40}$$

Example:

John earns \$7.50 per hour at work regularly. He earns twice as much per hour when he works overtime. He worked 30 regular hours and 9 overtime hours. How much did he earn this week?

$$\boxed{\$360}$$

Complete the following: p. 65 #5, 7, 10

$$8 \times 2.75 = \$22$$

$$9 \times 2.00 = \$18$$

$$24 \times 1.50 = \$36$$

$$\begin{array}{r} 15 \times 1.00 = \$15 \\ \hline \end{array}$$

$$\$91$$

$$56 \times 0.35 = \$19.60 + 10.00 = \$29.60$$

### **WORK BACKWARDS**

**Example:**

**Each year a delivery van is worth  $\frac{3}{4}$  of its value from the previous year. A van is now worth \$9,000. What was its value last year?**

skip

**Example:**

**Central Bakery baked some cookies and put  $\frac{1}{2}$  of them away for the next day. Then the bakery divided the remaining cookies evenly among its 3 sales outlets so that each outlet received 40 dozen. How many cookies did Central Bakery originally bake?**

**Complete the following: p. 77 #3**



Extra Credit:

p. 85 #2, 3, 6